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THE FIELD NATURALISTS' SECTION
of the
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Hon. Editor - - - NOEL LOTHIAN

Club founded 1883 — S.A. Naturalist 1919

'The author is responsible for the facts recorded.

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GENERAL INFORMATION

No special knowledge necessary to become a member, only a keen interest in natural history and a willingness to further the aims of the Section.

This Section was founded in 1883 for the purpose of affording observers and lovers of natural history regular and frequent opportunities for discussing those special subjects in which they are mutually interested; for the exhibiting of specimens; and for promoting observations in the field by means of excursions to various collecting grounds in and around the metropolitan area.

The Monthly Meetings of the Section for lectures, reading of papers, and exhibition of specimens are held on the third Tuesday, at 8 p.m. at the Royal Society's Rooms, Institute Buildings, North Terrace, Adelaide.

Visitors are welcome

Subscriptions—

Life Membership	£7/7/-
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Bus Trips (unless otherwise stated) leave from the corner of Kintore Avenue and North Terrace; at 8.30 a.m. for all-day trips, and 1 p.m. for afternoon trips. Persons desiring to attend should contact the Treasurer, Miss G. L. Gregor, at the School of Mines (W1771) at least seven days ahead.

Members can take receptacles for the carrying of specimens, for at each outing members may desire to make collections of items for further study.

Committee Meetings are held on the second Tuesday of each month.

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PROCEEDINGS

Botanic Garden, January 31, 1953.

There is a strong feeling among members of our Society that one meeting each year should be of a social nature, so that members, especially those who have recently joined, shall become better known to one another. The popularity of the idea was made apparent on Saturday, January 31, when more than 40 members and friends met at the Botanic Garden kiosk. All were surprised and delighted to see Miss Bowden, who had obtained special permission from the hospital superintendent to be brought along.

FEBRUARY MEETING

During his existence on this planet, man has visited practically everywhere on its surface. However, he knows but little of what lives in the great ocean deeps, and what he has learned has but whetted his determination to learn more. Mr. G. Thomas in his address on the evening of February 17, told of the conditions five or six miles below the ocean's surface—a region where the temperature was within a degree or so of zero, where there was enormous pressure, no sound and absolute darkness, save that light emitted from some of the creatures there. There were fish which by a row of light cells along their sides, gave the impression of a small tramcar moving along. There were creatures blind, without eyes and others with eyes, inordinately large.

The audience, which filled the Society's room to capacity, was fascinated by the lecture, which was illustrated by slides. Mr. Thomas pointed out that research in this field was originated and solely

After some discussion about the previous year's activities and other matters, members attended an enjoyable afternoon tea in the kiosk. Discussion was resumed by some, while others took short excursions to various points of interest in the Gardens, the classified section being very popular. Mr. Lin Williams, as usual, was very busy there, but found time to give some information about grasses.

All agreed that this should be an annual fixture, possibly as an end-of-the-year get-together.

A.C.M.

carried out by the British Admiralty until practically the beginning of this century. The research done by the "Challenger" in 1866 is still regarded as authoritative.

Mr. Dunstone described two plants which he brought along. They were *Ambrosia psilostachya* (Perennial Ragweed) *Psoralea patens*. These plants are rarely seen on the Adelaide Plains and it gave the finder much pleasure when he observed them adjacent to the railway track at Albert Park.

Mr. H. V. McDougall, Nyabing, W.A., and Mr. R. Clements, Leigh Creek coalfield, were elected country members.

—A.C.M.

As a complete list of financial members will be published in the June "Naturalist," will all members who have not yet paid their 1952 subscriptions please do so immediately. If this is not done the Committee will have no alternative but to remove your name from the "S.A. Naturalist" mailing list.

Australian Natural History Medallion

All members of the Section will be delighted to learn that their nominee, Emeritus Professor J. B. Cleland, C.B.E., M.D., Ch.M., has been awarded the Medallion for 1952. This award, as you will recall, is given to any person "who has increased popular or scientific knowledge of Australian Flora and/or Fauna, including Man; or has assisted notably in the propagation of Australian Flora and/or Fauna; or has discovered new species of importance; or has devoted considerable time and care to the study of any phase of Australian Natural History; or has performed definite service by the publication of articles or books."

As the above completely typifies the work which Professor Cleland has carried out during his entire life, it is felt that the Award Committee has been right in making this notable Medallion available to Professor Cleland.

Professor Cleland's activities on the professional side have revolved principally around Pathology, but for hobbies (if they could be described as such!) he has interested himself especially in botany, principally systematics, ecology and plant distribution. He is our authority for Fungi, and his writings on ornithology, ethnology, anthropology are well known. His writings too on what could be best described as Natural History subjects are a legion, and it is doubtful if there is any young naturalist today who has not received some help from Professor Cleland.

In the Civic Field he has been most active and for this he was awarded by His Late Majesty George VI. the C.B.E. for "outstanding work in many fields."

We are, in South Australia, I feel, extremely fortunate in having a man not only of the scientific calibre of Professor Cleland but in having such a man who has achieved so much and yet is one of the most unassuming, helpful and kindly men one could ever wish to meet. His scientific attainments are great and many-sided, and whilst this present award is for "services rendered," we know full well that the work will go on. We all offer our heartiest congratulations to Professor Cleland, and our best wishes for many years of useful life and good health to come.

KANGAROO ISLAND FLORA AND FAUNA CLUB

We are delighted to learn that a Club, covering the field of natural history of the Island has been established and has already a number of enthusiastic members. Mr. K. Dunstone, when visiting the Island last year, spoke to a gathering convened to form such a Club, and it is pleasing to note that part of his enthusiasm has been transmitted to its new members. The chairman is Dr. R. Burnell, and a warm invitation is extended to any member visiting the Island to meet their members and join in their activities.

"S.A. NATURALIST"

The Editor will welcome suggestions to improve the layout and contents of the "S.A. Naturalist." The best way this can be done is by sending along an article or short note on some phase of natural history not previously published.

The Committee will welcome such contributions especially from our country members.

PLANT DISTRIBUTION BY BIRDS

Before the European colonisation of Australia, its animals (including man) and plants had reached more or less an ecological equilibrium. Doubtless this equilibrium oscillated at times over many thousands of years and major

By J. B. CLELAND ⁽¹⁾

changes must have taken place during glacial and torrid periods. With the white man came destruction of native trees and shrubs to be replaced by crops and pastures, the introduction of farm animals, the accidental conveyance from other parts of the world of aggressive weeds, and the lamentable activity of acclimatisation societies who set free sparrows, starlings, blackbirds, English thrushes, goldfinches and so on. It is of interest to consider to what extent our native birds have been able to utilise the introduced plants as food, and on the other hand which of the introduced birds have found suitable native food-plants. Are the alien birds distributing almost entirely alien plants or have they aided in disseminating native ones?

Native Birds Utilizing Introduced Plant Foods

Good examples are parrots and silver-eyes in orchards, white cockatoos in fields of grain, galahs and germinating grain, and the emu and prickly pear. Of these, only the emu is acting as a disseminator of the seeds of its food-plant.

Introduced Birds and Native Fruits and Grains

In South Australia, edible native fruits are few in number. They comprise the following:—

Liliaceae:— Ridley⁽²⁾ says that *Dianella*, of which we have two species with blue berries, is a genus "which is far more widely spread and common than any of the section to which it belongs. The headquarters of the genus is Australia, where are a number of species, whence it has radiated to many islands, Polynesia, Fiji. . . . There can be little doubt that these widely distributed plants owe their success to the conversion of the capsular fruit into a conspicuous berry, allowing of their dispersal by birds." I do not know of any observations showing that the fruits of our species are eaten by birds.

Santalaceae:— Our four species of *Exocarpus* (Native Cherry) and *Leptomeria aphylla*, sometimes called Native Currant, have edible fruits but I am unaware of birds feeding upon these. The Quandong or Native Peach (*Eucarya acuminata*) is widely distributed, a fact of significance perhaps in connection with our subject. The Bitter Quandong (*E. Murrayana*) is similarly widely distributed. *Santalum lanceolatum* and its variety *angustifolium* in our Far North has a dark blue plum-like fruit.

Loranthaceae:— The Mistletoes are dealt with more fully later on. I doubt whether any of the introduced species feed upon its fruits. The Blackbird would be the most likely, but would not favour the altitude without cover of most of these parasites. Osborn

(1) Vide the S.A. Ornithologist Vol. XX., part 7, pp. 72-77, for a further article on this subject; (part of which is reproduced with further original observations.—Editor).

(2) Ridley, H. N. "The Dispersal of Plants Throughout the World," 1930.

and colleagues, writing of the Koonamore Reserve near the Broken Hill line, mention that Emus eat the fruits of *Loranthus Preissii* in quantities, but of course, not being able to fly, could not spread this mistletoe to other shrubs.

Chenopodiaceae:— The Ruby Saltbush (*Enchyllaena tomentosa*) with small red or yellow fruits (perianths) is widely distributed almost throughout the State. T. G. B. Osborn, J. G. Wood and T. B. Paltridge (Proc. Linn. Soc. N.S.W., LX, 1935, p. 407) consider that *Rhagodia* and *Enchyllaena*, with their fleshy fruits, are bird distributed and add: "It is very noticeable that the young plants of *Rhagodia Gaudicaudiana* . . . have done so (i.e., appeared) under trees that had served as perching places for birds."

Osborn, Wood and Paltridge recorded in 1935 that Galahs at Koonamore passed their beaks through the bracteoles of *Atriplex vesicarium* so that each pair was "neatly cut open with a semi-circular incision and the seed removed."

Pittosporaceae:— The Native Pittosporum (*Pittosporum phillyraeoides*) is also widely distributed but never abundant. Its leaves, J. M. Black says, are eaten by cattle and the seeds by natives. The two species of *Billardiera* have berries, but I do not know whether these are eaten. *B. cynosa* is widely distributed, but not abundant.

Rosaecae:— The Native Raspberry (*Rubus parvifolius*) has a rather poor dry fruit, and is found over considerable areas in the South, but again is sparingly distributed.

Zygophyllaceae:— *Nitraria Schoberi*, Nitre-Bush, which grows along the coast and also occurs in

land, particularly in the North, has an edible purple, red or golden drupe half-an-inch or more long. The fruit is eaten by the natives, but I do not know of any records of birds feeding on it, though this is likely.

Meliaceae:— *Owenia acidula* "Sour Plum," grows in this State near Cordillo Downs and the fruits are eaten by Emus.

Sapindaceae:— The Bullock Bush (*Heterodendrum oleifolium*) of our northern parts has a large scarlet arillus contrasting with black seeds, features, according to Ridley, inviting transport by birds.

Sterculiaceae:— *Brachychiton Gregorii*:— The Desert Kurrajong and Crows. N. B. Tindale and C. Hackett (Film of Mann Range, 1933, vide "Man," London, 1937) have recorded a very interesting example of the distribution of seeds by birds, an example that recalls the feeding of Elijah by the ravens. In the Mann Ranges in the North-West of this State they found the native women collecting in their coolamons the seeds of the Desert Kurrajong (*Brachychiton Gregorii*), which had been passed by Crows (probably the Little Crow, *Corvus Bennetti*) when they came to the rock-holes in the Ranges for water. A number of seeds could be readily gathered and were pounded between millstones into a meal, cooked and eaten. The Desert Kurrajong grows only on the sandhills well away from the ranges. The seeds are regurgitated as pellets (Condon, S.A. Orn. 16, Pt. 1, p. 3) round the rock-holes are left in an unsuitable situation to grow, but doubtless others were dropped in suitable places in the sandhills as the birds flew, and so the Desert Kurrajongs were distributed.

As the seeds are eaten intact, one wonders what edible matter accompanies them and why the crows ingest them. J. M. Black, in his "Flora of South Australia," says the fruit consists of 5 or fewer hard ovoid follicles, 4 to 5 cms. long, containing about 12 seeds, each seed with a loose brittle hairy coat which remains attached to the inside of the follicle when the seeds drop out, giving it a honey-comb appearance. Most of us are familiar with the similar fruits of the Common Kurrajong (*B. populneus*) and of the Flame Tree (*B. acerifolius*) grown so extensively in Adelaide. Several young *Brachychiton*s, probably the latter species, have appeared between the large pavement slabs between the main front building of the University and the Conservatorium, and another is several feet high growing through the asphalt and wooden steps leading down to the new Physics Building. Ascending the Gleeville spur at Beaumont is a wall of loose flat stones — a *Brachychiton* is growing from amongst these, the nearest tree being at least a quarter of a mile away. Have the seeds of these plants been dropped by birds and if so by what birds? This development in the interstices between stones and slabs — seedlings have not been seen in neighbouring open ground — is in contrast to the case of the Desert Kurrajong growing in the sand.

Myrtaceae: — Muntries (*Kunzea pomifera*) of our coastal sandhills has prostrate rooting stems and small edible berries tasting like apples.

Epacrdaceae: — Native Cranberry (*Astroloma humifusum*) is a more or less prostrate heath with red flowers.

Leucopogon parviflorus is a tall

heath growing in the sandhills near the sea which has numerous small white edible fruits probably fed upon by silver-eyes, but here again we want definite observations.

Acrotriche depressa, the Native Currant, is sufficiently common in some places such as near Williamstown, near Milang and on Kangaroo Island as to have its fruits, which hang on the undersides of the branches, gathered for jam. I do not know whether birds feed on these.

Solanaceae: — Several species of our *Solanums*, such as *S. esuriale*, *S. coactilliferum* (Ooldea), *S. ellipticum* (in our North-West) and *S. aviculare* (Kangaroo Apple), have fruits eaten by the natives. There seem to be no record of their being devoured by birds but rabbits eat the latter at Forbes in New South Wales.

Myoporaceae: — *Myoporum deserti*, according to J. M. Black, is sometimes called "Turkey Bush" because *Eupodotis australis*, the Wild "Turkey," is fond of the fruit.

Ridley, in combing the literature for examples of fruits eaten by birds, came upon my record in "The Birds of Pearson Island" (Trans. Roy. Soc. of S.A., 47, 1923) of finding a fruit of a *Myoporum* (*M. insulare*, the Blue-berry Tree or Boobialla), in a *Zosterops* (Silver-eye) on that island.

Eremophila longifolia, sometimes called "Native Plum-tree," has "very succulent, blackish-purple, ovoid or globular" drupes and is called "Emu Bush" (presumably because emus eat the fruits) in the eastern states (J. M. Black).

Rubiaceae: — Possibly the drupes of *Plectronia latifolia*, which is found in our Far North-West, may be eaten by birds.

Cucurbitaceae:— The small red globular cucumber, up to $\frac{1}{2}$ inch in diameter, *Melothria maderaspatana*, a slender climber, may perhaps be eaten by birds. The greenish, ovoid to elliptical oblong melon, about an inch long, of *Cucumis Melo* var. *agrestis*, the Ulcardo Melon, found north of Oodnadatta and Cooper's Creek, is eaten by the natives.

A consideration of the above list of South Australian native plants with edible fruits and of their distribution, especially in the Southern parts, shows what difficulty an introduced fruit-eating bird would have to maintain its existence were it not for introduced plants, cultivated or wild.

It is doubtful whether any native fruits are eaten by the introduced Blackbird or Starling. As regards grains of native grasses and dry seeds and fruits such as those of our *Acacia*, *Chenopodiaceae*, etc., it seems doubtful whether any of the introduced birds (Sparrows, Starlings, Blackbirds, Goldfinches, Greenfinches, English Skylarks and Lace-neck Doves) feed upon them at all. These pests are more or less confined to the more fertile South, where, with the exception of some of the Acacias, such seeds are not now common, many of the native plants having been replaced by introduced ones. In our dry north, the seeds of several grasses, of the native *Portulaca*, of species of *Chenopodium* and even of Eucalypts are gathered by the natives, ground and eaten, and doubtless would be used by grain-eating introduced birds if they had reached these regions. The sparrow has certainly reached many townships in the north which are along the railway lines, having advanced

from camp to camp during the construction and staying behind where settlement occurred. It could not cross over to Western Australia when the East-West Line was laid down, as this had been started from both ends, thus meeting in the middle and by that time railway camps on the Western Australian side had ended. This bird seems unable to maintain itself away from human habitations, unlike the Goldfinch.

Native Birds and Their Food

Emu and Cassowary:— North says that the fruits of the Quandong (*Eucarya acuminata*), the Sour Plum or Emu Apple (*Owenia acidula*), and the Prickly Pear form a large portion of the food of the Emu. It has been an extensive spreader of the latter pest. J. A. Boyd, quoted by North, mentions that in the Herbert River district in North-Eastern Queensland when the Quandong is ripe, the dung of the Australian Cassowary is a mass of stones of this fruit.

Leipoa:— Robert Grant informed North that he had found the stones of Quandong and of *Owenia acidula* in the crops and stomachs of Mallee-Fowls in Western New South Wales.

Quail:— Ridley points out that the quail are liable to be caught by birds of prey and in this way seeds in their crops may be liberated and so dispersal of plants may occur. He quotes M. M. Makai for the statement that "*Coturnix australis*, the Australian Swamp Quail" (*Synoicus australis*, Brown Quail) was introduced into New Zealand and that these birds are "most active agents in the spread of blackberries and gorse in Auckland." Thomson is his authority for the statement that *Coturnix pectoralis* (Stubble Quail) in New South

Wales eats occasionally fruits of *Solanum nigrum* (a common weed with us in waste places) and of *Phytolacca decandra* (Ink Plant), not yet recorded for this State, the achenes of *Ranunculus* and the seeds of *Stellaria media* (Chickweed).

Pigeons.— We have no Fruit Pigeons in South Australia but these birds in the sub-tropical brush forests of the Eastern States are doubtless responsible for the distribution of the seeds of various fruits, amongst them those of *Ficus rubiginosa*, which may begin its existence as an epiphyte. Ridley says that the Nutmeg Pigeons (*Carpophaga*) of the East Indies may feed on the aril of the nutmeg, which forms the soft aromatic crimson network called the mace, round the black or dark brown nutmeg itself. He says that "it is probable that the birds sometimes swallow nutmeg and all, and, digesting the mace, pass the seed by evacuation, as it has long been stated that the Dutch in the eighteenth century attempted to keep the nutmeg in cultivation only in Banda and Amboina, so that they might have control of the market, but their efforts were defeated by the pigeons, who conveyed the seeds to other islands." The Torrens Straits Pigeon *Myristicivora* (formerly *Carpophaga*) *Spilorrhhoa*, which occurs along the coast and islands of Australia from the Kimberleys to N.E. Queensland and extends to New Guinea and the Aru Islands, feeds largely on the native Nutmeg, *Myristica insipida*, according to the Official Checklist of the Birds of Australia, 1926. The generic name comes from the nutmeg and *vorare*, to eat. This plant has been recorded from the Islands of the Gulf of

Carpentaria, Brunswick Bay, Melville Island, Port Essington and North Queensland.

Our Bronzewing Pigeons may frequently be disturbed feeding along hedges of *Acacia armata* (Kangaroo Bush) but I doubt whether they distribute this or other Acacias.

Australian Bustard (Native Turkey).— Mr. J. M. Black in his "Flora of South Australia" says that *Myoporum deserti*, which has a yellow drupe, is sometimes called "Turkey Bush," because this bird is fond of its fruits.

Ducks, Geese and Swans.— These with their broad webbed toes, are fitted for the transport of seeds of water and swamp plants from one lake or swamp to another, sometimes probably over considerable distances.

Birds of Prey.— The only role these birds are likely to play in the distribution of plants is that they may intercept birds such as pigeons and finches with crops full of seeds which are dispersed when the prey is torn in pieces (Ridley).

Cockatoos and Parrots.— I cannot see any part that these can play in plant dissemination. We do, however, require lists of fruits and seeds, both native and introduced, eaten by various species. What other food besides nectar from Eucalyptus flowers do our Lorikeets get? Blue Mountain Lorikeets eat orchard fruit at times.

The Mistletoe Bird and other Birds and Loranthus.— South Australia has 12 species of *Loranthus*, and of the allied *Phrygilanthus*, and one Jointed Mistletoe. From their parasitic habitat, seeds must be transferred from plant to plant by mammals or birds. The Swallow Dicaeum is admittedly the most common spreader of the viscid

fruits but some maintain that Opossums (Phalangers) also do so, and there are other birds which feed on the fruits. For instance, in a late number of "The Emu" (Vol. 50, pt. 4, p. 325, 1951) K. A. Hindword and A. R. McGill, in their account of the 1950 camp-out at "Derra Derra" near Bingara in New South Wales, state that the Painted Honeyeater (*Grantiella picta*) and the Spiny-Checked Honeyeater (*Acanthagenys rufogularis*) were feeding on mistletoe berries. In the Adelaide district, the most common *Loranthus* are *L. Exocarpi*, widely distributed even within the city of Adelaide on Olives, the tall Norfolk Island *Lagunaria Patersonii*, *Robinia*, Orange, Ash and even on *L. Miquelii* growing on Eucalyptus; and *L. Miquelii* on Eucalyptus. The terete leaved *L. Preissi* may be found occasionally on Acacias.

The Mistletoe Bird (*Dicaeum*) has not been recorded from Kangaroo Island and for long it was thought that no mistletoe grew there. In the last few years, however, *L. miraculosus* var. *Melaleuca*, which parasitizes *Melaleucas* has been found on the island; this species is also common on tea-tree along the Coorong.

Mrs. Coleman, in her interesting "Further Notes on the Mistletoe" (The Victorian Naturalist, Vol. 66, No. 10, Feb. 1950, p. 191) describes having seen Mistletoe Birds voiding the viscid seeds and drawing the left foot swiftly backwards twice or thrice, as if to wipe off the seeds, as they were voided — quite unnecessarily in this instance because they had dropped on to a branch." Another bird defecated, flung a foot backward and, apparently, caught the dropping on its leg. It then picked it off the leg

and wiped it on a bough." Mrs. Coleman was surprised at the small amount of nourishment that the bird could obtain from each fruit if the seed passed contained so much viscin. Birds feeding on mistletoe berries must also frequently get the sticky fruits on the outside of the bill and adjacent parts and get rid of these by wiping the fruits off on a branch. Mistletoe berries noted by Mrs. Coleman as being found on a telephone line must obviously have got there by this latter method and not by being passed by the bowel.

Dicaeum has been found feeding on apple and the berries of *Coprosma* as well as the fruits of *Loranthus* and I have been given notes of Silver-eyes feeding on grapes, apples, pears, peaches, blackberries and the fruits of a yellow *Crataegus*, *Cotoneaster*, *Coprosma* and even of the Pepper-tree (*Schinus molle*), and at Cooktown of *Lantana camara* (G. M. Storr). Amongst the Honeyeaters, the larger species, particularly the Wattle-birds, the Spiny-checked Honeyeater and the Blue-faced Honeyeater and probably the Miners and Friar Birds are at times fruit-eaters and may spread the small seeds of figs and blackberries. The White-plumed Honeyeater has been noted eating apples, the Singing Honeyeater grapes on racks and the Yellow-wing Honeyeater loquats and pears. The seed-eating Finches, tending to break up the food ingested, are unlikely to aid in the spread of any plants. The Oriole has been found in Adelaide to have African Boxthorn berries in its stomach and at Imbil in Queensland the seeds of Inkberries (*Phytolacca*). The Spotted Bower-bird and other members of the genus *Chlamydera* are notori-

ous fruit-eaters in gardens in the drier parts of the interior. Crows and the Magpie are distributors of seeds.

Addendum

Mr. G. M. Storr has given me the following records from Queensland:—

Cassowary (*Casuarus casuarus*)—A feature of the scrubs South of Cooktown (N.Q.) is the excreta of these birds. They consist almost solely of pits of various fallen fruits of which only the pitted "stone" of the Blue Quandong (*Elaeocarpus grandis*) were identified. The Cassowary could be an important agent in the spread of many rain-forest trees.

Purple-crowned Pigeon (*Ptilinopus superbus*)—Berries of the palm (*Archontophoenix alexandrae*) and of *Lantana camara* of Cooktown.

Torres Strait Pigeon (*Ducula spilorrhoa*)—Blue Quandong at Cooktown.

Brown Pigeon (*Macropygia phasianella*)—Sarsaparilla, a small second growth tree of the rain-forested mountains, south of Cooktown.

Fig Parrot (*Opopsitta diophthalma*)—Sarsaparilla, Cooktown.

King Parrot (*Aprosmictus scapularis*)—Acacia, sp., Cooktown.

Lewin Honeyeater (*Meliphaga lewinii*)—Sarsaparilla, Cooktown.

Lesser Lewin Honeyeater (*M. notata*)—*Lantana camara*, Cooktown.

Olive-backed Oriole (*Oriolus sagittatus*)—Sarsaparilla, Cooktown.

Spotted Catbird (*Ailuroedus melanotus*)—Octopus Fig (*Ficus* sp), Cooktown.

Great Bower-Bird (*Chlamydera nuchalis*)—Custard Apple (*Annona squamosa*), Cooktown.

Victoria Rifle-Bird (*Ptiloris Victoriae*)—Sarsaparilla and *Archontophoenix alexandrae*, Cooktown.

DROOPING RED GUMS

Referring to the note in the December issue of the South Australian Naturalist further specimens of Weeping Red Gums have been noted. Opposite the Waterfall Gully Road on the Burnside Road is a Red Gum with distinct weeping branches. This is a well established tree and its characteristic is quite easily seen.

In High Street, Burnside, two further specimens were seen in a Garden. These have evidently been planted and they could have been grown from seed or are seedlings from the tree referred to above.

J. B. Cleland.

SPECIAL MEETINGS

In conjunction with the Royal Society of S.A. (Inc.) the Section will hold two special meetings in March. These will be held in the Public Library Lecture Room, and members are invited to bring along their friends. The dates and lecturers, both of which will be illustrated, are as follows:—

March 9th (Monday)—Professor Stirton, Prof. of Paleontology, University of California, U.S.A. Subject will be "Fossil Horses."

March 25th (Wednesday)—Professor H. Creighton, Prof. of Botany, University of Massachusetts, U.S.A. Subject: "American Native Plants."

WILD FLOWER SHOW

The Committee has decided to hold a Wild Flower and Nature Show on October 2-3, 1955. The show convenor will be Mr. Noel Lothian, and a strong committee is expected to be appointed soon.

AN AUTUMN MORNING

It was a morning in May,
When begins the Australian Autumn,
Full of the peaceful influence
Of ripening fruit and falling seed,
Of the lull of rest and quietude
After the strenuous ordeals
Of the purifying summer's heat.

The morning broke bright and fresh.
Away to the east there raged
The perennial battle of the dawn.
A great bank of cloud
Hung pall-like over the mountains,
And held the master of the day
For a moment in check.
But soon a rim of gold
On their uppermost margin
Heralded his triumph,
And in a moment he burst forth
In all his glory.

At once the landscape was transfigured.
The sky shone out in deeper blue,
The trees and shrubs and rocks
Made images of themselves
In vivid light and shade,
And every drop of dew
On grass and bush and spider's web
Reflected the glory
Of the great father of lights
In numberless tiny twinkling rainbow orbs.
Light and life,
Glory and beauty,
Everywhere.

And yet the cool freshness of the night
Still lingered in all things.
The clean sweet air,
Washed and purified by the gentle rain,
Which the night before
Had broken the long weary drought,
Moved immaculate in all its new-born virginity.
The white paths, the crisp grass, the turgid leaves
And the spring of the cool damp earth,
All spoke of renewed life and energy.

Fresh as the morning too
Was the song of the warbling magpies,
Leaders of the morning choir,
Which burst spontaneously
From every tree and shrub and housetop.

Edgar W. Pritchard.

What Other Nature Societies Are Doing in Australia

by Ken Dunstone

To find out how other kindred societies function, I wrote to other naturalist clubs and societies in Australia whose addresses I could find. In due course I received most informative replies from the following:—

The Field Naturalists' Club of Victoria.

Field Naturalists' Club, Bendigo, Victoria.

Portland Field Naturalists' Society, Victoria.

Launceston Field Naturalists' Club.

Naturalists' Society of N.S.W.

The West Australian Naturalists' Club.

National Parks Association of Queensland (a most illuminating reply).

The Townsville and District Naturalists' Club.

North Queensland Naturalists' Club.

On presenting this information to the Committee, it was suggested that a precis of it be prepared for general information. Here it is!

The first thing that impressed me was the enthusiastic spirit in which all the letters were written. The writers went to no end of trouble in supplying me with the information, such as the number of outings per month, number of juvenile members, how they get their leaders, etc. Some went so far as to place the information in a most systematic way under various headings, thus making it easy to compare one society with another.

In the main, the aims and objects of all societies are the same, the primary one, of course, being

the preservation of flora and fauna. As far as I can judge, all of the organisations from which I received replies are not affiliated in any way with parent bodies, but seem to be independent societies.

The annual subscription for ordinary members is in the vicinity of 10/- per annum, in most cases with a reduction to 5/- or 7/6 per annum for junior members.

Most of the bodies publish some sort of journal regularly and these are generally of very high order. It is significant in these days of high printing costs that these absorb the larger part of the annual subscription.

As regards programmes, most of the organisations supply printed or duplicated ones to their members; monthly, quarterly or half-yearly. In some instances, the society prefers not to publish a programme made up too far in advance but just work things out from month to month.

The programme of the West Australian Naturalists' Club is a very attractive printed one on thin card, and covers a full year. A very important feature of this club is that they have *only one field excursion per month*, with one evening meeting a month for seniors and one a month for juniors.

The Bendigo Club's programme is drawn up half-yearly.

The Launceston Club publishes a printed card, giving details of their monthly meetings, but stating that outings are arranged as requested.

The Field Naturalists' Club of Victoria has no printed programme

because they prefer to take advantage of any visitors who may be available.

The National Parks Association of Queensland publishes a monthly circular setting out details of their field outings and evening meetings. Incidentally, this last mentioned body appears to be particularly active and more will be said about it later.

In general, members of the above mentioned naturalist organisations represent all age groups, and come from all walks of life.

Some clubs have been formed quite recently, such as Bendigo, established in 1945, and Portland about 5 years ago. The National Parks Association of Brisbane was formed in 1930. Some others, such as the West Australian Naturalists and the Victorian Field Naturalists, have been in existence for a long time.

The number of members bears an approximate relation to the population of the respective city or town, but, in the case of Perth, the number of both junior and senior members is far in excess of that of Adelaide, a city of somewhat greater population. One would expect the converse to be the case.

On analysing the actual subjects dealt with at the monthly meetings, one finds a very large variety of topics and it is apparent that all interests are catered for by various groups of nature-lovers. To obtain speakers for these evening meetings, it is the general practice to call upon members sufficiently versed in their particular fields, or people from Universities, Colleges or other institutions. Leaders for the day excursions are obtained by

interstate clubs from their own members.

In caring for the needs of the younger members, the other states have the right idea in having separate sections or groups which foster, specifically, the special needs of youth. And this is where they can show South Australia a few points. Unfortunately, in some States it does not seem to be recognised that it is essential to cater for the younger members, or if this is realised nothing very practical seems to be done about it. It is pleasing to observe that the W.A. Naturalists have a flourishing body of young people **WHO ARE CONSISTENTLY INTERESTED**, for it is from the younger members that the future office-bearers of any club or society must come and it is important to encourage them.

Mention must be made of the National Parks Association of Queensland and the very considerable amount of work it has done in having numerous areas gazetted as reserves. This group has a large following, especially among young people, and the reason for this is because the Association has regular tours, camp-outs and hikes. While not acting merely as a hiking or camping club, its scope is much wider as is evident from its fine record of achievement in being largely instrumental in recommending to the Government suitable areas for reserving as parks, etc., **AND THESE ACTUALLY BEING RESERVED**. This association has a membership list of at least 500 in those who love nature (not only in a scientific way) and who like to enjoy nature in the vigorous, healthy out-doors fashion.

The objects of the National Parks Association of Queensland are worth stating:—

- (1) To preserve intact in their natural condition the existing national parks of Queensland; and to secure the reservation of suitable areas.
- (2) To educate public opinion to a fuller appreciation of the necessity and value of national parks.
- (3) To form a link between the public and the administration dealing with the national parks.
- (4) To co-operate with other organisations having the same or similar objects.
- (5) To assist in the enforcement of protective regulations concerning national parks.

It is noteworthy that this Association arranges various trips at weekends, ranging from strenuous to easy, in order that all ages may be catered for. It holds eleven field outings annually and, recently, they had a very extensive Northern

Field Outing which embraced a good deal of practical work in the way of botanical and other types of observation and many new species were found. A very comprehensive report of this excursion was published and it makes excellent reading.

This Association has been responsible for many publications which deal in a very thorough way with Queensland's national parks.

From the information I have, most naturalist societies do not enlist the aid of any special advertising methods but rely on membership growing spontaneously. It is not always true, of course, that the numerical strength of any given body is indicative of its true strength, but members must be kept up to replace those who leave or resign for various reasons.

Finally, I will gladly show anyone who wishes to see them, the letters, pamphlets, etc., from which I have drawn for the above survey.

BOOK REVIEWS

Flora of the British Isles. By A. R. Clapham, T. G. Tutin and E. F. Warburg. (Cambridge University Press, 1952. i + 1591 pp.). English price 50s. net. Cloth.

The publication of this new Flora is a very important event for botanists in the British Isles; we shall try to assess its effect in Australia. The book is written by three progressive University teachers with some expert help and designed for the student and field botanist, with type-setting, descriptions, numerous abbreviations and thin, strong paper all aimed at condensation; the price of 50s. sterling is the one undesirable exception to this process and makes us appreciate the low cost

of our South Australian Flora and Fauna handbooks. Illustrations are few and left for a future volume.

The standard floras it will replace are surprisingly old—Bentham's Handbook of the British Flora (1858); J. D. Hooker's Student's Flora of the British Islands (1870) and Babington's Manual of British Botany (1843), all with later revisions. Since these books were conceived, much more is known and included here about the species of the region (intensively studied since John Ray's time for 300 years at least), and some of the new facts are basic to an understanding of the relationships between species and sub-

species, viz. breeding and pollination habits, hybrid status and chromosome numbers; ecological data, including Raunkaier's Life Forms (with an explanatory note) are also very helpful. Much of this type of information is so far lacking for the Australian flora. Briefly, the book is an inspiring model setting quite a new style to those compiling floras of similar scope.

In actual use, there are adequate keys to families, genera and species; the key to the families is artificial, producing strange bed-fellows from the point of view of a natural classification, but this is remedied by the "Synopsis of Classification" showing not Engler's sequence of families, to which Black's "Flora of South Australia" has accustomed us, but one modi-

fied from Bentham and Hooker to fit in with present day thought. Species difficult to distinguish are grouped as "aggregate species" for simplicity, and to read the sections on *Hieracium* and *Rubus* reveals the approach to difficult genera; italics are freely used to emphasise salient features; and there are a short bibliography, a glossary and an index of scientific and common names.

The value of the book to Australians, then, is partly in the treatment of the limited number of genera and species common to both countries (many of them naturalized here), but chiefly as a brilliant exposition of new botanical fields of knowledge being applied in a flora.

C. M. Eardley.

CHECK LIST OF NORTH QUEENSLAND ORCHIDS

The North Queensland Club, just over 20 years ago, commenced from small beginnings. A few, but very enthusiastic naturalists formed this club so that the natural history of the district could be examined, discussed, and, where necessary, recorded. A programme of work to carry out these aims was drawn up, and over the years the achievements have been many. A number of us will recall the duplicated lists of plant names which were issued from time to time, together with their localities, names of collectors, flowering dates, etc. An herbarium was established and also other natural history collections made.

This reviewer has always held the opinion that if a club proposes to issue or publish anything, it

should do so right away and not wait "until there is enough money to produce something worthwhile." While it is always pleasant to publish a nicely finished journal or list, it should not be forgotten that it is the results contained therein which are of greater importance. The early "North Queensland Naturalist" — the club journal — were small unpretentious bulletins, but the records they contained were sound and of considerable use. Finally, the club was able to print regularly the Naturalist, but the duplicated lists of plants were still issued; records of which today are extremely useful to the ecologist, plant geographer and systematic botanist.

But other publications were envisaged and at last it was possible to commence the issuing of check lists, giving in co-ordinated form

the scattered details contained in the early flora lists. So in March, 1945, a check list of North Queensland Orchids appeared. This was followed by small but valuable bulletins dealing with fish, edible plants, ferns, birds and Australian *Dryopidae*. It is an example of what can be done by a "small club," and puts many of the older and larger clubs to shame!

Now the club has thought it wise to re-write their first check list of the North Queensland Orchids, and this has been issued as "Publication No. 7." It has been prepared by that wonderful naturalist of North Queensland, Dr. H. Flecker, (who is life patron of the club) and assisted by "the grand old man of Orchids," Rev. H. M. R. Rupp. The result is as one would expect, a first-class piece of work.

The list has twelve pages, including 4 pages of line drawings (with several from the pen of the late lamented orchidologist, W. H. Nicholls), and is important to all who are interested in these plants. Over 50 genera, 175 species and a large number of varieties are included. Other pertinent details

given include locality, collector's name and, where known, date of flowering.

To the Southerner the lack of terrestrial species is interesting, the great variety of *Dendrobium* bewildering, and the appearance on the list of genera usually considered to be limited to the Malayan regions, fascinating. A few words to form an introduction to the list would have proved invaluable to naturalists elsewhere, and the lack of synonymy is a little puzzling to the non-specialist. It is printed to the same size as the North Queensland Naturalist (8" x 5½"), the type is good and clear, and proof reading has been excellent, for no serious mistakes have been noted. Decapitalisation of specific epithets has been adopted throughout which, no doubt, may cause some feeling amongst those who do not hold to this view.

The check list is invaluable to all who are interested in these fascinating plants, and the club is to be congratulated on issuing such a list. It is obtainable from the Hon. Secretary (Mr. J. Wyer), 253 Sheridan Street, Cairns; price 2/6.

—T.R.N.L.

EASTER CAMP

It was decided at the Campers' Meeting, held on the 24th February, that the Campers should provide their own food, and cook either individually or in groups according to choice.

Sleeping accommodation provided at the Hostel is extremely limited, and some Campers will be required to bring their own stretchers and bedding. (Arrange this point with the Treasurer when booking.)

Pending the hire of a lorry or truck (at a slight extra cost) to transport the luggage from the bus route to the hostel.

Tentative transport has been arranged with Briscoe's Bus Service, the fare being 4/6 each way. The bus will leave the

depot at 9 a.m. sharp on Good Friday, and the return journey may be made at either 3 p.m. or 8 p.m. (from Aldinga) on Easter Monday.

Definite information on this point will be available at the next monthly meeting (March). Those unable to attend should contact the Treasurer immediately.

Passengers should book with Briscoe's (Morialta Street) one week in advance.

Members desiring to attend the Camp should contact the Treasurer immediately, and pay the accommodation (5/-) by the 17th March.

PLEASE NOTE: ALL Campers are expected to bring their own food, cutlery, linen, and ONE blanket.

EXCURSIONS

TEA TREE GULLY AND HERMITAGE DISTRICT.

On August 30, 1952, the Field Naturalists visited Tea Tree Gully and Hermitage. These places are in the north-western area of the Mount Lofty Ranges. Tea Tree Gully is at the foothills and derived its name from *Leptospermum scoparium*. Apparently this species was prevalent where the village is now situated and can still be found growing near at hand.

The flora growing near Tea Tree Gully is varied and interesting. *Astroloma conostephioides*, *Grevillea lavandulacea*, *Hibbertia stricta* and *H. sericea*, *Acacia armata*, *Dodonaea viscosa*, *Pultenaea daphnoides* and *Leucopogon virgatus* are some of the species to be seen growing in profusion. *Eucalyptus leucoxylon* is the dominant tree along the foothills and, in many cases, is the host to *Loranthus*. Some trees have succumbed completely to the "mistletoe". After leaving Tea Tree Gully and travelling east to the top of the hills the vegetation shows a marked change, the dominant tree being the hybrid box *Eucalyptus elaeophora* in association with *Eucalyptus fasciculosa* (pink gum), known to the local people erroneously as the "scrub gum".

Eucalyptus elaeophora is also mistakenly called the "peppermint" gum by most people living in this area. This species has the glaucous coppice shoots which are often sold as "peppermint gum suckers". Professor J. G. Wood, in the "Vegetation of South Australia" mentions *Eucalyptus elaeophora* particularly. He says "large forests of this species, in association with *Eucalyptus obliqua*, are growing between Mount Crawford and the Torrens Gorge".

From the top of the range east of Tea Tree Gully the road goes north-east past the Glen Ewin fruit preserving and jam factory to the Hermitage. The party of Field Naturalists went as far as the Little Para Creek which thereabouts is travelling north. This turns west a little further on and runs on through the hills to Salisbury emptying into the sea near the Bolivar on the Port Wakefield Road.

Looking north from the Hermitage there is a view of the *Eucalyptus obliqua* (Stringybark) forest which comprises Humbug Scrub. It is particularly noticeable that the Stringybark never grows west of the Little Para although *Eucalyptus*

elaeophora is abundant on both sides of the creek. Professor Wood states "It is apparent some hybridization between *Eucalyptus elaeophora* and *E. obliqua* has taken place". This, of course, would mean east of the Little Para. West of this creek it would appear that some hybridization has taken place between *E. fasciculosa* and *E. elaeophora*.

The Little Para has its source at Paracombe about two miles north of the Torrens Gorge and four or five miles from the Hermitage. Both Blue Gum, *Eucalyptus leucoxylon* and Red Gum, *E. camaldulensis* grow near the creek and occasionally an *Acacia melanoxylon* is noticed.

This locality, rich in flora, is well worth investigation and study.

C. Tilmouth.

"SEA ACRES," CORNY POINT,

December, 1952.

The Field Naturalists held their camp for the second time at "Sea Acres", near Corny Point, from Xmas Day to New Year's Day.

During these seven days, nature lovers had a most enjoyable and profitable time either roaming the surrounding scrub or the long white beach, and on three occasions when bus trips were taken to other parts of the coast.

Both shell-collectors and botanists found plenty to interest them. Although most shells were of the same species as those seen on our local beaches, it was a great delight that such vast quantities could be had, merely for the gathering. Among the favourites found were the cowries, the small cowry *Notocypraea pipervita*, being plentiful, but the discovery of a black cowry, *Zoila theresites*, or a helmet shell, *Hypocassia bicarinata*, would be the day's news throughout the camp.

The botanist found many specimens in the surrounding scrub, in which *Casuarina* and *Melaleuca* were dominant. Hundreds of trees of *Melaleuca pubescens* were decorated with large patches of the scarlet flowering mistletoe, *Loranthus preissii*. Four species of *Acacia* were abundantly represented, *Acacia brachybotrya*, *A. eulhyecarpa*, *A. Bynocana*, and *A. sophorae*. Among the composites were *Helichrysum Baxteri*, *H. leucopsidium*, *H. apiculatum*; *Podolepis rugata* (a golden

Captain Cook's Tortoise

Through the kindness of the Director of the S.A. Museum, the following notes on the above subject are made possible. The letters are self-explanatory.

20th December, 1951.

The British Agent and Consul,
TONGA, POLYNESIA.

Dear Sir,

Dr. J. B. Cleland, Emeritus Professor of Pathology, at the University of Adelaide, has drawn my attention to an article in "The Lancet" for 4th August, 1951, by W. R. Thrower.

On page 219 the author makes the following statement apropos of Cook's third voyage, 1776-1779, "In Tonga the ships received a royal welcome, and among the presents given to the king was a tortoise, which is alive to this day!" It seems remarkable to us that taking all circumstances into consideration this tortoise should be alive after such a long lapse of time. Any information, which you may be good enough to supply, would be much appreciated.

Yours faithfully,

(Sgd.) HERBERT M. HALE,
(Museum Director).

H.B.M.'s Agency and Consulate,
TONGA.

June 27, 1952.

Sir,

I have the honour to acknowledge the receipt of your letter dated the 20th December, 1951, on the subject of Captain Cook's tortoise, and in reply, to record hereunder for your information, an extract from a letter written by H.R.H. Tungi on this subject:—

"With regard to Tu'imalila the Tortoise, I cannot say offhand whether Cook mentions in his voyages the occasion in which he gave the tortoise to the Tu'i Tonga or Sacred King of Tonga. However, reliable oral traditions say the tortoise was given by Cook to the reigning Tu'i Tonga whose compound was named Malila. The name Tu'imalila means King of the Malila. The tortoise being a valued gift, was given this name. Circumstantial evidence points to the reliability of this tradition. In the first place, the species is not indigenous to Tonga. Secondly, Tongan oral tradition is fairly reliable concerning the names of early Navigators and Discoverers and the tortoise has not at any time been connected with the name of anyone except Cook or Tute as the Tongans called him. The T and K sounds were often interchangeable in Polynesian speech e.g. present-day Samoan. This tortoise is still very much alive today."

I have the honour to be, Sir,
Your obedient servant,
—J. E. WINDRUM,
(H.B.M.'s Agent and Consul).

everlasting in full bloom), and a coastal type of *Nodia achilleoides*.

A stroll on the beach in the evening, never failed to provide some splendid entertainment for nature lovers. Being mid-summer, the sunset over the sea was a never-failing delight, but the moon-rise was even more magnificent. The constantly changing shades of pink and gold, in sky and sea resultant from the rising of the full moon, was something to watch for a long time, and to decide that it alone, was worth the bus fare down, to witness.

At the same hour, the cormorants made their spectacular retirement to bed preceded by an exhibition of aeronautics over the sea, till one bird, flying off to the roosting tree, was followed by the

remainder of the flock, a small group at a time, leaving an empty sky for the spectators on the beach. A tall, dead *Casuarina* was their roosting place, and was the scene of much commotion, until each bird had found its own spot to sleep. I crept nearer for a closer view of this extraordinary sight of a huge tree, bearing only a large number of dark, oval-shaped objects, when a snapping twig beneath my feet breaking the silence, about seventy heads on long white necks were thrust out towards me, hut being assured of no further disturbance, were one by one, telescoped back into normal position for sleep. I had witnessed a marvellous "show", and slipping away (in silence, this time) I thought: "This alone, is worth the fare home". H. M. Stockham

THE FIELD NATURALISTS' SECTION
EXCURSIONS:

1953.

March

- 7—Escourt House. Subject: Shells. Leader: Mrs. J. J. Turnbull.
Grange train, 1.15 p.m.
15—(Sunday). Mt. Lofty. Subject: Autumn Foliage. 10.45 a.m. train
to Mt. Lofty.
28—Botanic Garden. Leader: Mr. T. R. N. Lothian. Meet inside eastern
gates, 2.15 p.m.

April

- 3-6—EASTER CAMP, ALDINGA — National Fitness Council Hostel.
Bus leaves Kintore Avenue 8 a.m.
18—Mr. Bagot's Garden at Aldgate. Leader: Mr. Booth. 1.15 p.m. train.
25—ANZAC DAY HOLIDAY. Myponga Jetty. (Bus trip times to be
arranged.)

May

- 2—ARBOUR DAY, National Park. Meet at Reserve, 2.15 p.m.
17 (Sunday)—Outer Harbour. Subject: Shells and Bird Life.
30—National Park. Subject: Fungi. 1.15 p.m. train to National Park.

June

- 6—Henley Beach. First tram after 1 p.m. to terminus. Subject: Sea-
weeds.
21 (Sunday)—National Park. 10.45 a.m. train to National Park Station,
thence to the north-east corner of the Park.

MONTHLY GENERAL
MEETINGS:

- March 17—Speaker: Mr. T. R. N. Lothian — Plants of Eastern Australia.
April 21—Landscape Slides in Colour by Mr. J. Windle.
May 19—Fungi, by Professor Cleland.
June 16—Subject: Coloured Films.

COMMITTEE MEETINGS:

- | | |
|----------|--------|
| March 10 | May 12 |
| April 14 | June 9 |

EXCURSIONS

The Secretary will be pleased to receive suggestions of suitable localities to visit during 1953-54.

BOTANY CLUB STUDY CIRCLE

- March 23—Plant Physiology.
April 11—Meet in Museum at 2 p.m.
April 27—The Cycle of Life.
May 9—Meet in Museum at 2 p.m.
May 25—*Polygalaceae* and *Stackhousiaceae*.
June 13—Meet in Museum at 2 p.m.
June 22—*Sapindaceae* and *Rhamnaceae*.

CONCHOLOGICAL SOCIETY:

- March 18—*Scaphopoda*
April 15—*Mytilidae*
May 20—American Gastropods
June 17—Genotypes of South Australian Genera